Is it time to consider glaucoma screening cost-effective?

Kanclerz, Piotr

2019-11

Kanclerz , P , Grzybowski , A & Tuuminen , R 2019 , ' Is it time to consider glaucoma screening cost-effective? ' , Lancet global health , vol. 7 , no. 11 , e1490 , pp. E1490-E1490 . https://doi.org/10.1016/

http://hdl.handle.net/10138/306783
https://doi.org/10.1016/S2214-109X(19)30395-X

Is it time to consider glaucoma screening cost-effective?

Jianjun Tang and colleagues (July, 2019)[1] analysed the cost-effectiveness and cost-utility of population-based glaucoma screening in urban and rural China. Since the cost-utility analysis, which was based on Markov models, might be sensitive to parametric uncertainty, we believe some discussion is required.

Data regarding the prevalence of transition from one stage of glaucoma to another are scarce, especially when considering bilateral contexts: in clinical studies, data are usually presented by eye. We wonder how the authors have estimated the prevalence of bilateral transition in their study. The cited cross-sectional analysis[2] does not provide this information. Nevertheless, the authors presented estimates with an accuracy of two decimal places.

Data on the utility of screening for glaucoma are also limited. Tang and colleagues only cited one study,[3] which estimated the health utility index solely from the visual acuity of 60 patients, but this previous study not did not evaluate patients' quality of life. Assessing utility on the basis of visual acuity in patients with glaucoma is fairly inaccurate, since patients with early and moderate loss of their visual field manifest good visual function, even in their worse eye. Moreover, the applied utility seemed relatively low, with assumptions of 0·80 for those with mild primary open angle glaucoma (POAG), 0·75 for those with moderate POAG, and 0·71 for those with severe POAG. According to Hagman,[4] even in cases of severe glaucoma, the utility should be considered higher than these estimates, reaching 0·82–0·94.

Notably, to date, no screening method is sufficient to detect glaucoma.[5] Within the study by Tang and colleagues,[1] the sensitivity and specificity were relatively low; the high rate of false-positive and false-negative results will lead to additional workload for ophthalmologists, which will require prioritisation of the available resources. In patients who are later found to have been given a false-positive diagnosis of glaucoma, medications should be withdrawn when it is confirmed they do not develop manifest glaucoma.[5]

We believe that, in the future, improved accuracy of automated imaging diagnostics (including the use of artificial intelligence) and more effective treatment options against glaucoma progression could attenuate health-care resource use, after which the cost–benefit ratio would favour screening for glaucoma.

PK reports non-financial support (congress fees, transportation, and accommodation) from Visim and grants from Optopol Technology. AG reports non-financial support (congress fees, transportation, and accommodation) from Alcon, Valeant, and Santen, personal fees from Valeant and Santen, and grants from Zeiss and Alcon, outside the submitted work. RT reports non-financial support from Bayer and Thea and personal fees from Novartis, Allergan, and Alcon, outside the submitted work.

*Piotr Kanclerz, Andrzej Grzybowski, *Raimo Tuuminen*
raimo.tuuminen@helsinki.fi

Hygeia Clinic, Gdańsk, Poland (PK); Department of Ophthalmology, University of Warmia and Mazury, Olsztyn, Poland (AG); Institute for Research in Ophthalmology, Foundation for Ophthalmology Development, Poznań, Poland (AG); Helsinki Retina Research Group, Faculty of Medicine, University of Helsinki, Helsinki 00014-HY, Finland (RT); and Eye Centre, Kymenlaakso Central Hospital, Kotka, Finland (RT)

1 Tang J, Liang Y, O'Neill C, Kee F, Jiang J, Congdon N. Cost-effectiveness and cost-utility of population-based glaucoma screening in China: a decision-analytic Markov model. *Lancet Glob Health* 2019; **7:** e968–78.
2 Foster PJ, Buhrmann R, Quigley HA, Johnson GJ. The definition and classification of glaucoma in prevalence surveys. *Br J Ophthalmol* 2002; **86:** 238–42.
3 Brown M, Brown G, Sharma S, Kistler J, Brown H. Utility values associated with blindness in an adult population. *Br J Ophthalmol* 2001; **85:** 327–31.
4 Hagman J. Comparison of resource utilization in the treatment of open-angle glaucoma between two cities in Finland: is more better? *Acta Ophthalmol* 2013; **91:** 1–47.
5 Tuulonen A. Cost-effectiveness of screening for open angle glaucoma in developed countries. *Indian J Ophthalmol* 2011; **59** (suppl)**:** S24–30.